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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/781,218

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EXAMINER

STIMPert, PHILIP EARL

ART UNIT

PAPER NUMBER

3746

NOTIFICATION DATE

DELIVERY MODE

02/09/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/781,218	Applicant(s) KIMURA ET AL.	
	Examiner Philip Stimpert	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,6-10,12 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 and 18 is/are allowed.
- 6) ☒ Claim(s) 1,3,6-9 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the Office action of 11 July 2008 is persuasive and, therefore, the finality of that action is withdrawn. Further, this action is intended to supplement and replace that of 3 December 2008, in order to correct errors in the treatment of claim 12, and to thereby clarify the status thereof.

Claim Objections

2. Claim 12 are objected to because of the following informalities: in claim 12, in the third line of the indentation beginning with "joining the circuit cover," the claim recites "with holding the motor driving circuit." This appears to be a typographical error. Appropriate correction or clarification is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, and 6-9 rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda (US 2002/0025265) in view of Henein et al (US 5,360,322), Ghassaei (US 6,027,239), and Sato et al. (US 6,501,019).

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5. Regarding claim 1, Ikeda teaches an electric compressor (10) comprising: a compressor housing (1, 51-52); a gas compression mechanism (60, 70) accommodated in the compressor housing (51-52); an electric motor (80) that drives the compression mechanism (60, 70); a motor driving circuit (2-4) that drives the electric motor; and a circuit cover (6) attached to an outer surface (1) of the compressor housing, wherein the compressor housing and the circuit cover define an accommodating space, wherein the motor driving circuit (2-4) is accommodated in the accommodating space. Ikeda does not teach that the motor driving circuit (2-4) is attached to the circuit cover, nor does Ikeda teach a fastener for attaching the motor driving circuit to the circuit cover which permits the motor driving circuit to move toward the circuit cover and prevents the motor driving circuit from being detached from the circuit cover. Henein et al teach that their control apparatus (3) is attached to the circuit cover, and that this creates a modular apparatus that is inexpensive to manufacture (col. 1, ln. 32-36, Fig. 3). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Ikeda's compressor to attach the motor driving circuit to the circuit cover in order to reduce manufacturing costs as taught by Henein et al. Ghassaei teaches a structure for mounting a "personality module" to an instrument package. In particular, Fig. 2 shows a circuit cover (50), a circuit board (24), and several fasteners (52) which prevent the circuit from being detached from the circuit cover. Further, as the presence of spacers (42) indicates, the fasteners permit the circuit board to move toward the circuit cover. Ghassaei teaches that the personality module is installed separately from the rest of the system (col. 3, ln. 50-51), which would lead one of ordinary skill in the art to

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the conclusion that the structure disclosed is useful in maintaining cohesion of a separately assembled structure. It would further have been obvious to provide fasteners to attach the motor driving circuit to the circuit cover in order to maintain cohesion of the circuit cover's separately assembled structure, as taught by Ghassaei. Further, the combined references teach the limitation that the motor driving circuit is held between the circuit cover and compressor housing when the circuit cover is joined to the compressor housing, and the limitation that the motor driving circuit includes a circuit board (see drawings in either reference) and a switching element (Ikeda, paragraph 4, lines 5-11) and that the circuit board has surfaces facing towards and away from the circuit cover. The combined references do not explicitly teach that the switching element is attached to the surface facing away from the circuit cover, or that it is pressed against the compressor housing when the circuit cover is joined to the housing. However, Ikeda teaches that "heat generated by inverter 2 of drive circuit 4 is absorbed by lower temperature refrigerant gas through partition wall 1b," (paragraph 18, lines 3-5), and one of ordinary skill in the art would appreciate that conductive contact between the switching element (inverter) and the compressor housing would have increased the heat transfer rate from and thus the cooling effect on the switching element. Therefore it would have been obvious at the time of the invention to one of ordinary skill in the art to arrange the switching element on the circuit board such that it was attached to the face opposed from the circuit cover and was pressed against the compressor housing when the circuit cover was assembled to the housing.

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6. The previously combined references do not teach the limitation of an elastic member arranged between the compressor housing and the switching element by which the switching element is pressed against the housing. However, one of ordinary skill in the art would readily appreciate that a compressing mechanism such as that of Ikeda or Henein would cause vibration. Sato et al. teach a method of mounting a circuit board similar to the motor drive circuit of the present combination. In particular, Sato et al. teach an elastic member (col. 3, ln. 1-10) which provides elastic pressure urging a printed circuit board to remain in position, despite the vibration source provided in that reference. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the compressor of Ikeda with an elastic member as taught by Sato et al. between the housing and the switching element, in order to secure the switching element in place despite the vibrations of the compressor.

7. Regarding claim 3, the combined references do not teach that the fasteners used include a bolt and a nut. However, screws, nuts and bolts are all well known fasteners in the art, and it is to be expected of one of ordinary skill in the art to be able to select an appropriate fastener for a given application.

8. Regarding claim 6, the combined references teach the limitation that an adjusting member (either Ikeda's resin 100' or the circuit board supports of Henein et al) is arranged between the circuit cover and the circuit board, and if the switching element were pressed against the housing as above, the adjusting member would adjust force with which the switching element presses against the compressor housing.

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9. Regarding claims 7-8 Ikeda shows, in Fig. 2, a body of resin 100'. This body of resin functions as a circuit board support member, and is located on a part of the surface of the circuit board facing the circuit cover which corresponds to the switching element, meeting the limitations of claims 7-8.

10. Regarding claim 9, the supports shown in Fig. 3 of Henein et al which join the circuit board to the circuit cover constitute a circuit board support member and, in particular, spacers.

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda in view of Henein et al., Ghassaei, Sato et al. and Nakatani (US 5,888,627).

12. Regarding claim 12, the combined references teach a method (Henein et al, col. 1, ln. 32-35) of assembling an electric compressor having a compression mechanism accommodated in a compressor housing, wherein the compression mechanism is driven by an electric motor to compress gas, the method comprising: attaching a motor driving circuit for driving the electric motor to a circuit cover; and joining the circuit cover, to which the motor driving circuit is attached, to an outer surface of the compressor housing such that the compressor housing and the circuit cover define an accommodating space for accommodating the motor driving circuit. Further, according to the combination, the step of attaching the motor driving circuit to the circuit cover includes attaching the motor driving circuit to the circuit cover with a fastener such that the motor driving circuit is prevented from detaching from the circuit cover and is permitted to move toward the circuit cover. Further, the combined references teach that the motor driving circuit is held between the compressor housing and the circuit cover

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when the cover is joined to the housing. Finally, the combined references teach that the motor driving circuit includes a circuit board and a switching element, wherein the circuit board has a first surface facing the circuit cover and a second surface located on a side opposite from the circuit cover, and wherein the switching element is mounted on the second surface, and wherein, when the circuit cover is joined to the compressor housing, the switching element is pressed against the compressor. For detailed discussion, please see the above treatment of claim 5.

13. Further regarding claim 12, the combined references teach the limitation that an adjusting member (either Ikeda's resin 100' or the circuit board supports of Henein et al) is arranged between the circuit cover and the circuit board, and if the switching element were pressed against the housing as above, the adjusting member would adjust force with which the switching element presses against the compressor housing. The step of arranging that adjusting member is implicit in its presence in the disclosed structure.

14. Ikeda and Henein et al. do not teach that the resin is provided while still soft to allow adjustment of the thickness thereof. Nakatani teaches the provision of uncured thermosetting resin (col. 4, ln. 20) to a PCB. One of ordinary skill would appreciate that this method of providing soft, uncured resin would allow for taking up tolerance slack in a particular design. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the resin of Ikeda to the motor driving circuit while still soft in order to take up tolerance slack encountered during manufacture.

15. Finally, the previously combined references do not teach the limitation of an elastic member arranged between the compressor housing and the switching element

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by which the switching element is pressed against the housing. However, one of ordinary skill in the art would readily appreciate that a compressing mechanism such as that of Ikeda or Henein would cause vibration. Sato et al. teach a method of mounting a circuit board similar to the motor drive circuit of the present combination. In particular, Sato et al. teach an elastic member (col. 3, ln. 1-10) which provides elastic pressure urging a printed circuit board to remain in position, despite the vibration source provided in that reference. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the compressor of Ikeda with an elastic member as taught by Sato et al. between the housing and the switching element, in order to secure the switching element in place despite the vibrations of the compressor.

Allowable Subject Matter

16. Claims 10 and 18 are allowable over the art of record.

17. The following is a statement of reasons for the indication of allowable subject matter: the limitation of a spacer selected from a plurality of spacers prepared in advance is not shown in the prior art of record in concert with the remaining limitations of the relevant claims.

Response to Arguments

18. Applicant's arguments with respect to claims 1-3, 6-9, and 12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Stimpert whose telephone number is (571)270-1890. The examiner can normally be reached on Mon-Fri 7:30AM-4:00PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
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/P. S./
Examiner, Art Unit 3746
30 January 2009